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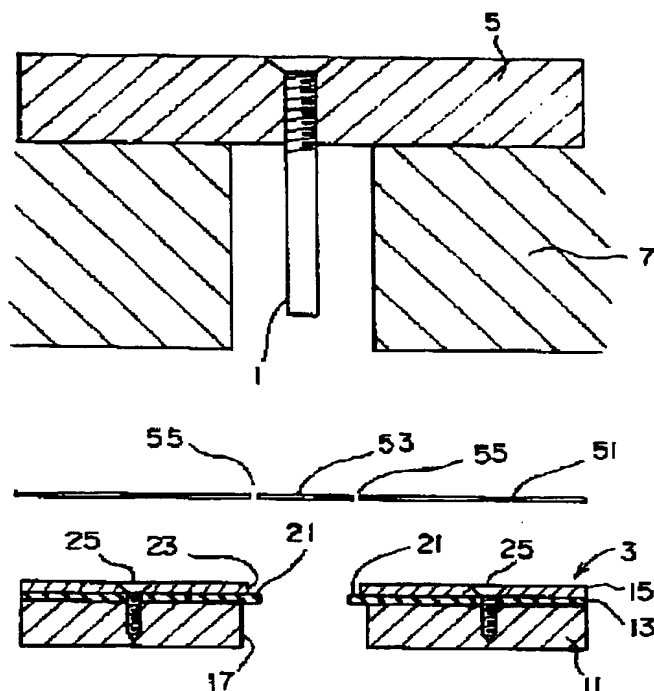
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SEISAKUSHO:KK;

INVENTOR : KATAYAMA ISAMU;

INT.CL. : B26D 7/18

TITLE : FEMALE PLATE STRUCTURE IN
PUNCHING MACHINE



ABSTRACT : PURPOSE: To punch the residue of sheet material positively regardless of the shape and size by additionally providing an elastic piece protruding inward of the hole of a female mold so as to be positioned inside of the contour of the residue in the case of piercing a punching pin through the hole of the female mold to punch the residue interposed in between.

CONSTITUTION: The upper part of a punching pin 1 is fixed to a veneer board 5, and sponge 7 is fixed to the veneer board 5 around the punching pin 1. A female plate 3 is formed by laminating a lower plate 11, an elastic plate 13 and an upper plate 15, and these plates are pierced with a hole 17. In sheet material 51, a residue 53 is partitioned by a cutting line 55, and the residue 53 is punched by the punching pin 1 at the time of piercing through the hole 17. In this case, the hole 17 is formed to be larger than the residue 53. On the other hand, the elastic plate 13 is provided with an elastic piece 21 protruding inward of the hole 17 so as to be positioned inside the contour of the residue 53. The whole residue 53 is thereby pushed down by the punching pin 1 and the elastic piece 21, and the residue 53 can be positively punched regardless of the shape and size.

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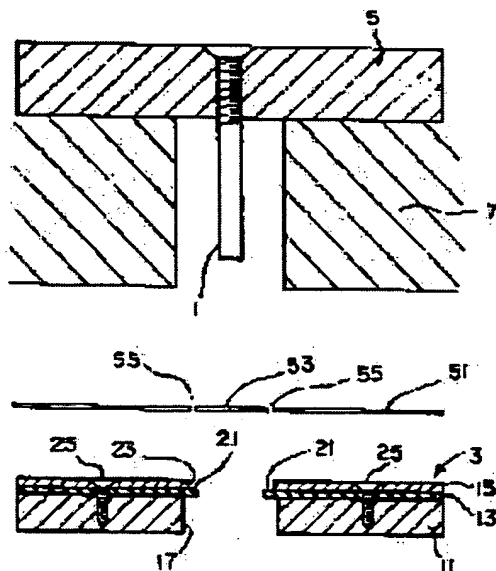
(72)Inventor : KATAYAMA ISAMU

(54) FEMALE PLATE STRUCTURE IN PUNCHING MACHINE

(57)Abstract:

PURPOSE: To punch the residue of sheet material positively regardless of the shape and size by additionally providing an elastic piece protruding inward of the hole of a female mold so as to be positioned inside of the contour of the residue in the case of piercing a punching pin through the hole of the female mold to punch the residue interposed in between.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the female plate structure in the punching machine further used for a detail in case notching of a request configuration is prepared in web materials, such as a film made of synthetic resin, and thin paper, pasteboard, about the female plate structure in a punching machine.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the cross-section front view of the important section of the punching machine concerning the 1st example.

[Drawing 2] It is the bottom view of the important section of the punching machine concerning the 1st example.

[Drawing 3] It is the explanatory view of the stripping process concerning an example.

[Drawing 4] It is the explanatory view of the stripping process concerning an example.

[Drawing 5] It is the explanatory view of the stripping process concerning an example.

[Drawing 6] It is the explanatory view of the stripping process concerning an example.

[Drawing 7] It is the explanatory view of the stripping process concerning an example.

[Drawing 8] It is the explanatory view of the stripping process concerning an example.

[Drawing 9] It is the cross-section front view of the important section of the punching machine concerning the 2nd example.

[Drawing 10] It is the bottom view of the important section of the punching machine concerning the 2nd example.

[Drawing 11] It is the cross-section front view of the important section of the punching machine concerning the 3rd example.

[Drawing 12] It is the bottom view of the important section of the punching machine concerning the 3rd example.

[Drawing 13] It is the bottom view of the important section of the punching machine concerning the 4th example.

[Drawing 14] It is the cross-section front view of the important section of the punching machine concerning the 5th example.

[Drawing 15] It is the bottom view of the important section of the punching machine concerning the 5th example.

[Drawing 16] It is the explanatory view of the dregs prepared in a web material.

[Drawing 17] It is the cross-section front view of the punching machine by the conventional method.

[Drawing 18] It is the outline top view of the punching machine by the conventional method.

[Drawing 19] It is the explanatory view of the stripping process by the conventional method.

[Drawing 20] It is the explanatory view of the stripping process by the conventional method.

[Drawing 21] It is the outline top view of the punching machine by the conventional method.

[Drawing 22] It is the explanatory view of the stripping process by the conventional method.

[Drawing 23] It is the explanatory view of the stripping process by the conventional method.

[Drawing 24] It is the explanatory view of the stripping process by the conventional method.

[Drawing 25] It is the explanatory view of the stripping process by the conventional method.

[Description of Notations]

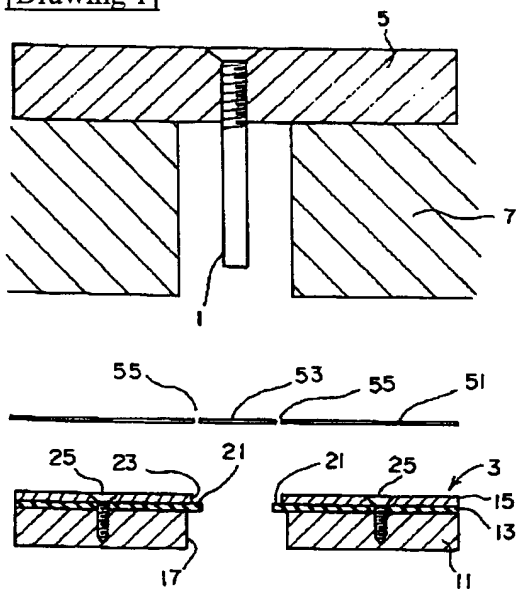
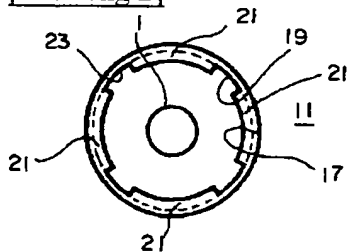
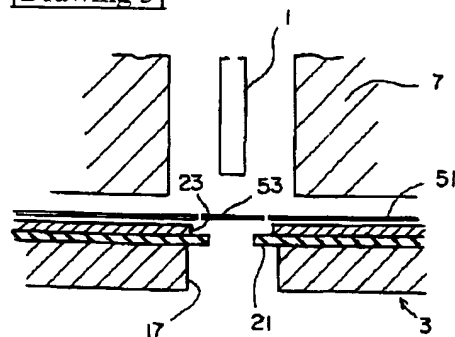
1 Punching Pin
3 ****
7 Sponge
11 Inferior Lamella
13 Elastic Plate
15 Superior Lamella
17, 19, 23 Hole
21, 221, 321, 421, 521, 522 Elastic piece
51 Web Material
53 Dregs
55 Perforated Line
57 Bond

[Translation done.]

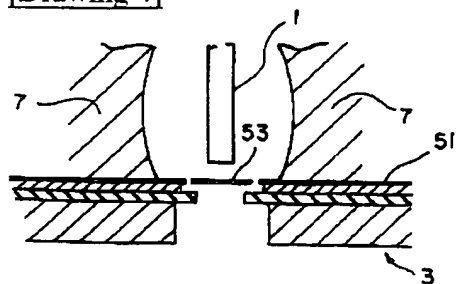
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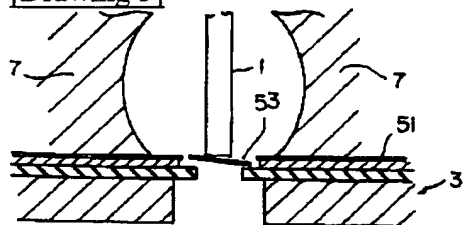
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DRAWINGS[Drawing 1][Drawing 2][Drawing 3]

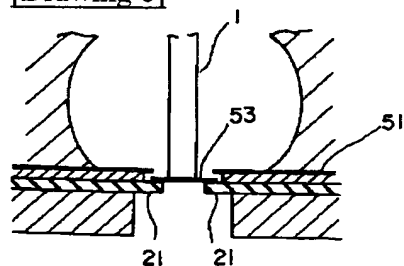
[Drawing 4]



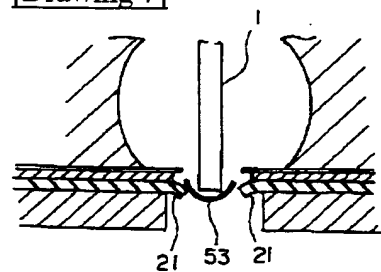
[Drawing 5]



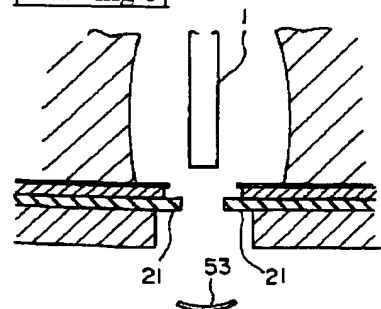
[Drawing 6]



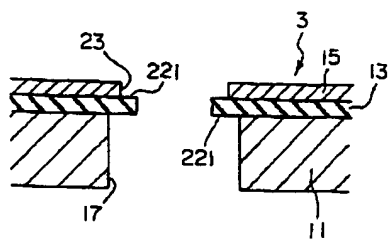
[Drawing 7]



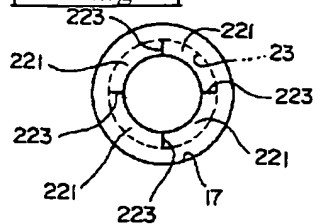
[Drawing 8]



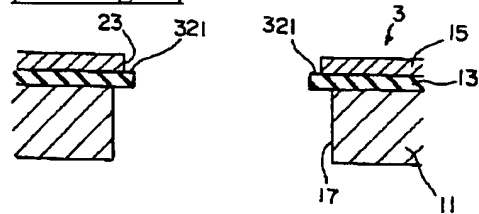
[Drawing 9]



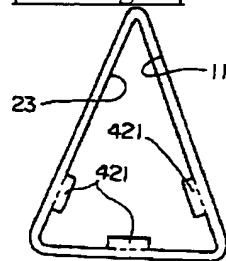
[Drawing 10]



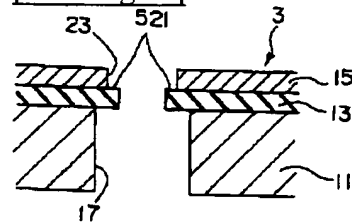
[Drawing 11]



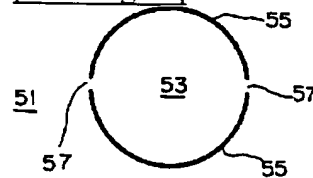
[Drawing 13]



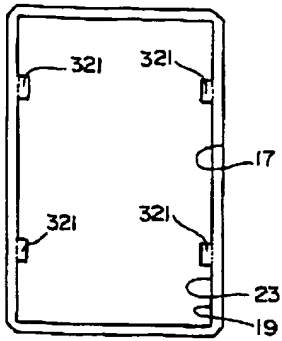
[Drawing 14]



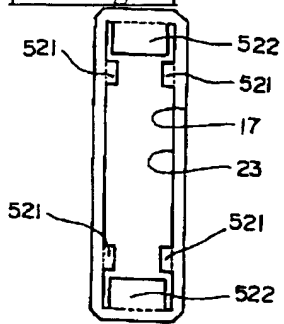
[Drawing 16]



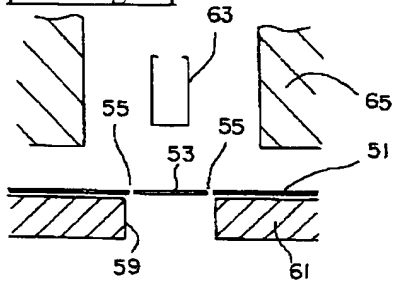
[Drawing 12]



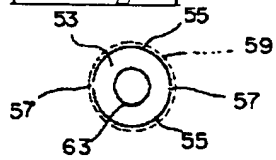
[Drawing 15]



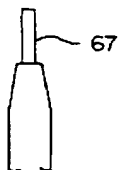
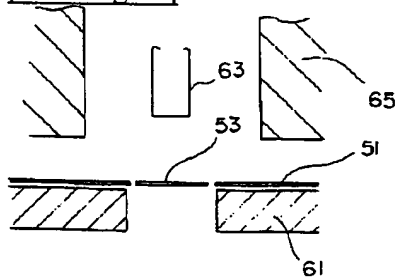
[Drawing 17]



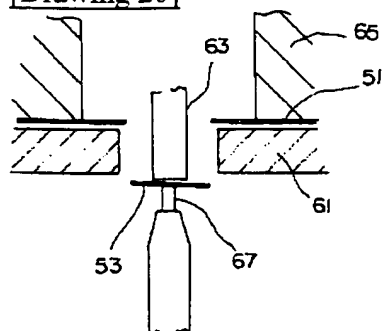
[Drawing 18]



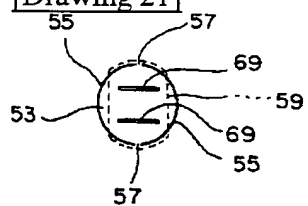
[Drawing 19]



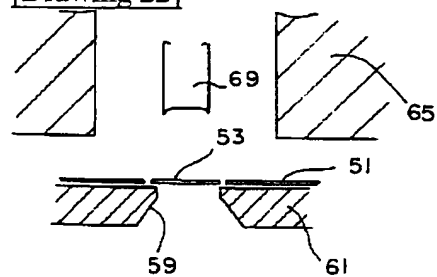
[Drawing 20]



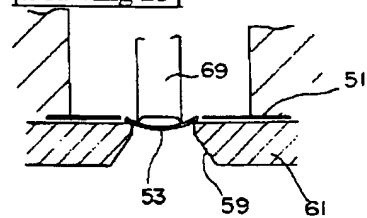
[Drawing 21]



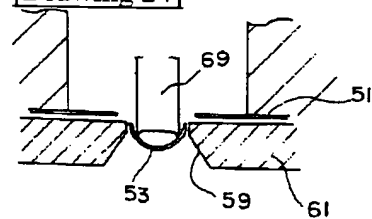
[Drawing 22]



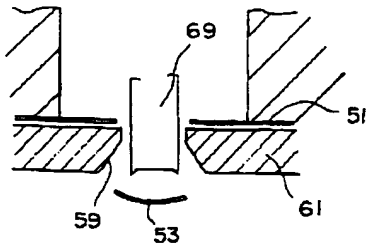
[Drawing 23]



[Drawing 24]



[Drawing 25]



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CLAIMS

[Claim(s)]

[Claim 1] Said dregs are laid according to said hole on **** in which the hole was formed in the web material which has the dregs formed by the perforated line and the bond. In the punching machine which a hole is made to penetrate a punching pin from said dregs part, and extracts said dregs from a web material Female plate structure in the punching machine characterized by what the elastic piece located inside the profile of the projection aforementioned dregs at the method of the inside of the direction of a path of a hole was prepared for in the part which forms the hole of said **** in a larger configuration than said dregs, and is located in a predetermined dimension lower part from the top face of **** in the inner circumference section part of said hole.

[Claim 2] It is the female plate structure in the punching machine according to claim 1 in which said **** consists of an inferior lamella, an elastic plate arranged on this inferior lamella, and a superior lamella arranged on this elastic plate, and said elastic piece is formed by said elastic plate.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the female plate structure in the punching machine further used for a detail in case notching of a request configuration is prepared in web materials, such as a film made of synthetic resin, and thin paper, pasteboard, about the female plate structure in a punching machine.

[0002]

[Description of the Prior Art] In case notching of a request configuration is prepared in web materials, such as a film made of synthetic resin, and thin paper, pasteboard, the perforated line which met first the profile of notching which should be formed in a web material is formed. A web material is laid on the female mold of for example, a press machine, a cutting cutting edge is attached in the punch of a press machine, this perforated line drops this cutting cutting edge with a punch, and the pressure welding of it is carried out to a web material, and it is formed in it. And if the dregs surrounded by the perforated line fall out on female mold at the time of formation of a perforated line with this cutting cutting edge, since it becomes impossible to perform formation of a perforated line continuously, as shown in drawing 16, two or more parts in which a perforated line 55 is not formed in the perimeter of dregs 53 in the shape of continuation on a web material 51, and the perforated line 55 called bond 57 is not formed are left behind. And the dregs 53 formed by the perforated line 55 and the bond 57 fail to be extracted from a web material 51 in stripping process that the process of a perforated line 55 is another.

[0003] At this stripping process, as a cross-section front view shown to drawing 17 and shown to drawing 18 in an outline top view, **** 61 made from the plywood with which the hole 59 of a larger configuration a little than dregs 53 was formed on the female mold of a press machine is set, on this **** 61, a hole 59 is aligned with dregs 53 and a web material 51 is carried. And he fractures a bond 57 by attaching the punching pin 63 and sponge 65 in the punch side of a press machine, piercing by descent of a punch, dropping a pin 63 and sponge 65, suppressing a web material 51 with sponge 65 first, and pressing dregs 53 caudad by the punching pin 63 with descent of the punching pin 63 subsequently, and is trying to drop dregs 53 from a hole 59 caudad.

[0004]

[Problem(s) to be Solved by the Invention] However, by such method, when dispersion is in arrangement and magnitude of a bond 57, even if it presses dregs 53 by the punching pin 63, no bonds 57 are fractured depending on the case, but only the punching pin 63 penetrates a web material 51, dregs 53 hang down from a web material 51 through the part of a bond 57, and there is fault which cannot fail to extract dregs 53 certainly. Then, the method the punching pin 63 and the bottom pin 67 were made to descend to drawing 19 and drawing 20 where it raised the bottom pin 67 at the time of descent of the punching pin 63 and dregs 53 are inserted by the punching pin 63 and the bottom pin

67, as shown in stripping process drawing is also proposed. However, since structure must be complicated, an assembly must take time and effort, since the device in which the bottom pin 67 is made to go up and down on the punching pin 63 and the same axle is needed, and the bottom pin 67 must be raised, this method takes between that minute, and working efficiency also has bad fault.

[0005] Moreover, as an outline top view shown to drawing 21 and shown to drawing 22 thru/or drawing 25 in stripping process drawing Two or more press plates 69 of predetermined die length are formed instead of the punching pin 63. Further the configuration of the hole 59 of **** 61 upper limit in a configuration smaller than dregs 53 And in case it forms in the shape of a taper so that it may become large and dregs 53 are caudad pressed with the press plate 69 as it results caudad, curve deformation of the dregs 53 is carried out, and the method which fails to extract dregs 53 from a web material 51 using the reaction force is also proposed. However, there is fault which there will be fault which cannot still fail to extract dregs 53 certainly, and will take time in processing of the press plate 69 and a hole 59 also by this method if dispersion is in arrangement and magnitude of a bond 57.

Moreover, there was a problem it becomes impossible to form a hole 59 in **** 61 by this method by it becoming impossible using the press plate 69 depending on the case where dregs 53 are small when dregs 53 are the round head of a minor diameter, and the configuration of dregs 53, but extracting dregs 53 when dregs 53 approach and are prepared, since a hole 59 is a taper-like further.

[0006] This invention is thought out in view of said situation, even if the purpose of this invention has dispersion in a bond, neither the magnitude of dregs nor a configuration is [how] scrupulous, and it is to offer the female plate structure of the punching machine which can fail to extract dregs certainly from a web material.

[0007]

[Means for Solving the Problem] In order to attain said purpose, this invention the web material which has the dregs formed by the perforated line and the bond In the punching machine which lay said dregs according to said hole on **** in which the hole was formed, and a hole is made to penetrate a punching pin from said dregs part, and extracts said dregs from a web material It is characterized by preparing the elastic piece located inside the profile of the projection aforementioned dregs at the method of the inside of the direction of a path of a hole in the part which forms the hole of said **** in a larger configuration than said dregs, and is located in a predetermined dimension lower part from the top face of **** in the inner circumference section part of said hole.

[0008] Moreover, this invention consists of an elastic plate with which said **** is arranged on an inferior lamella and this inferior lamella, and a superior lamella arranged on this elastic plate, and said elastic piece is characterized by being formed by said elastic plate.

[0009]

[Function] With descent of a punching pin, dregs are pinched by a punching pin and the elastic piece, the whole dregs will be in the condition of having been caudad pressed from the web material, and, thereby, two or more bonds of all will be fractured certainly. It bounds caudad according to the reaction force in which the elastic piece returned to the original condition with that elasticity in the place where dregs moved the elastic piece to the ***** lower part caudad by descent of the further punching pin, dregs also curved to convex caudad by resistance of an elastic piece at this time, and dregs were pushed more nearly caudad than an elastic piece, and dregs carried out curve deformation, falls, and drops certainly from a hole.

[0010]

[Example] Hereafter, the example of this invention is explained with reference to a drawing. The cross-section front view of the important section of the punching machine which drawing 1 requires for the 1st example, and drawing 2 show the bottom view of this important section. 1 is a punching pin, 3 is ****, the punching pin 1 is attached in the punch side of for example, a press machine, and **** 3 is attached in the female mold side of a press machine. As for said punching pin 1, sponge 7 is fixed to the plywood part around the punching pin 1 by fixing that upper part to plywood 5, and this

punching pin 1 is formed in the shape of the round bar as usual. The plywood 5 with which these punching pin 1 and sponge 7 were fixed is attached in the punch of a press machine.

[0011] Said **** 3 consists of an inferior lamella 11, an elastic plate 13 arranged on this inferior lamella 11, and a superior lamella 15 arranged on this elastic plate 13. Said inferior lamella 11 is formed with plywood, and the hole 17 of a larger configuration a little than dregs 53 is formed in the inferior lamella 11. In the example, the plywood whose thickness is about 6.0-9.0mm is used as an inferior lamella 11, and the hole 17 is formed of the laser cut with the profile larger about 1.5mm than the profile of dregs 53.

[0012] Said elastic plate 13 is formed of the member which has the elasticity of synthetic resin or natural rubber. In said elastic plate 13, the elastic piece 21 located inside the profile of the projection dregs 53 is formed in the method of the inside of the direction of a path from the inner circumference section of the hole 19 of a profile larger about 1.0mm than the profile of dregs 53, and this hole 19, the elastic piece 21 sets regular intervals to the hoop direction of a hole 19, and is prepared in it four, and each elastic piece 21 has predetermined die length in the hoop direction. The rubber plate whose thickness is about 1.5mm is used as an elastic plate 13, and the method of the inside of the direction of a path is made to project about 2mm from the inner skin of a hole 19 in the example.

[0013] Said superior lamella 15 is formed with synthetic resin, and the hole 23 of a larger configuration a little than dregs 53 is formed in the superior lamella 15. In the example, since the thickness of the target web material 51 is about 0.3-2.0mm, the vinyl chloride plate whose thickness is about 1.5mm as a superior lamella 15 is used, and the hole 23 is formed of the laser cut in the same configuration as said hole 19. In addition, plywood may be used as a superior lamella 15, and as long as processing is the member made simply, things other than plywood or a synthetic-resin plate may be used for a superior lamella 15 and an inferior lamella 11.

[0014] An inferior lamella 11, an elastic plate 13, and a superior lamella 15 make the core of each hole 17, 19, and 23 agree, and are piled up, **** 25 is fixed, **** 3 is constituted by this, and **** 3 doubles the core of holes 17, 19, and 23 with the punching pin 1, and is attached in the female mold of a press machine.

[0015] Next, an operation is explained. As shown in drawing 3, dregs 53 are aligned with holes 17, 19, and 23, and a web material 51 is carried on **** 3. Next, a punch is dropped as shown in drawing 4. This pierces, a pin 1 and sponge 7 descend, sponge 7 contacts a web material 51 first, and a web material 51 is suppressed on **** 3 by sponge 7 being compressed.

[0016] As the punching pin 1 shows drawing 5 in the center of dregs 53, with descent of the punching pin 1, dregs 53 are caudad pushed by descent of the further punch, and the bond 57 is fractured. And with descent of the further punching pin 1, as shown in drawing 6, two or more bonds 57 are fractured certainly altogether, and dregs 53 are extracted from a web material 51. With descent of the punching pin 1, dregs 53 are once pinched by the punching pin 1 and the elastic piece 21 on the elastic piece 21, this will be in the condition that the dregs 53 whole was caudad pressed from the web material 51, and it will be thought that two or more bonds 57 are fractured certainly altogether by this.

[0017] As descent of the further punch shows to drawing 7, dregs 53 are caudad pushed by the punching pin 1, dregs 53 move the elastic piece 21 to a ***** lower part caudad, and dregs 53 also curve to convex caudad by resistance of the elastic piece 21 at this time. And it bounds caudad according to the reaction force in which the elastic piece 21 returned to the original condition with the elasticity as the place where dregs 53 were pushed more nearly caudad than the elastic piece 21 showed to drawing 8, and dregs 53 carried out curve deformation, falls, and drops certainly from a hole.

[0018] thus -- according to this example -- the hole of **** 3 -- since the elastic piece 21 was formed in the part located in a predetermined dimension lower part rather than the top face of **** 3 inside, at the time of descent of the punching pin 1, it will be in the condition that the dregs 53 whole was caudad pressed by the punching pin 1 and the elastic piece 21 from the web material 51, and all the

bonds 57 will be fractured certainly. Therefore, even if dispersion is in arrangement and magnitude of a bond 57, neither the magnitude of dregs 53 nor a configuration is [how] scrupulous, and it becomes possible to fail to extract dregs 53 certainly.

[0019] Moreover, if an inferior lamella 11 and a superior lamella 15 constitute **** 3 like an example on both sides of the elastic plate 13 with which the elastic piece 21 was formed beforehand, the elastic piece 21 can be formed easily and **** 3 can be obtained cheaply.

[0020] Next, another example is explained with reference to drawing 9 thru/or drawing 13. **** 3 shown [drawing 9] in a bottom view with a cross-section front view at drawing 10 differs in the configuration of the elastic piece 221 from the 1st example. In this example, inside a hole 23, make the elastic piece 221 continue, it is made to project annularly, and is divided by the slit 223 four. With the cross-section front view, corresponding to the configuration of dregs 53, **** 3 shown in a bottom view at drawing 12 is that from which the configuration of dregs 53 became a rectangle, and the configuration of holes 17, 19, and 23 is also formed in a rectangle, the elastic piece 321 projects to drawing 11, and it is formed in the part corresponding to a rectangular long side at it. Moreover, **** 3 shown in a bottom view at drawing 13 is that from which the configuration of dregs 53 became a triangle, and the elastic piece 421 projects in the part corresponding to each triangular side, and it is formed in it. **** 3 shown in a bottom view at drawing 15 is that from which the configuration of dregs 53 became the rectangle of ** length, and in case it enlarges width of face of the elastic piece 522 prepared in a shorter side and extracts dregs 53 to drawing 14, the longitudinal direction center section of dregs 53 serves as convex caudad by the elastic piece 522, and it is made to incurvate it by this example with a cross-section front view to it rather than the elastic piece 521 prepared in a long side.

[0021]

[Effect of the Invention] By the above explanation, this invention the web material which has the dregs formed by the perforated line and the bond so that clearly In the punching machine which lay said dregs according to said hole on **** in which the hole was formed, and a hole is made to penetrate a punching pin from said dregs part, and extracts said dregs from a web material Since the elastic piece located inside the profile of the projection aforementioned dregs at the method of the inside of the direction of a path of a hole was prepared in the part which forms the hole of said **** in a larger configuration than said dregs, and is located in a predetermined dimension lower part from the top face of **** in the inner circumference section part of said hole Even if dispersion is in a bond, neither the magnitude of dregs nor a configuration is [how] scrupulous, and it becomes possible to fail to extract dregs certainly from a web material.

[Translation done.]

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PRIOR ART

[Description of the Prior Art] In case notching of a request configuration is prepared in web materials, such as a film made of synthetic resin, and thin paper, pasteboard, the perforated line which met first the profile of notching which should be formed in a web material is formed. A web material is laid on the female mold of for example, a press machine, a cutting cutting edge is attached in the punch of a press machine, this perforated line drops this cutting cutting edge with a punch, and the pressure welding of it is carried out to a web material, and it is formed in it. And if the dregs surrounded by the perforated line fall out on female mold at the time of formation of a perforated line with this cutting cutting edge, since it becomes impossible to perform formation of a perforated line continuously, as shown in drawing 16, two or more parts in which a perforated line 55 is not formed in the perimeter of dregs 53 in the shape of continuation on a web material 51, and the perforated line 55 called bond 57 is not formed are left behind. And the dregs 53 formed by the perforated line 55 and the bond 57 fail to be extracted from a web material 51 in stripping process that the process of a perforated line 55 is another.

[0003] At this stripping process, as a cross-section front view shown to drawing 17 and shown to drawing 18 in an outline top view, **** 61 made from the plywood with which the hole 59 of a larger configuration a little than dregs 53 was formed on the female mold of a press machine is set, on this **** 61, a hole 59 is aligned with dregs 53 and a web material 51 is carried. And he fractures a bond 57 by attaching the punching pin 63 and sponge 65 in the punch side of a press machine, piercing by descent of a punch, dropping a pin 63 and sponge 65, suppressing a web material 51 with sponge 65 first, and pressing dregs 53 caudad by the punching pin 63 with descent of the punching pin 63 subsequently, and is trying to drop dregs 53 from a hole 59 caudad.

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EFFECT OF THE INVENTION

[Effect of the Invention] By the above explanation, this invention the web material which has the dregs formed by the perforated line and the bond so that clearly In the punching machine which lay said dregs according to said hole on **** in which the hole was formed, and a hole is made to penetrate a punching pin from said dregs part, and extracts said dregs from a web material Since the elastic piece located inside the profile of the projection aforementioned dregs at the method of the inside of the direction of a path of a hole was prepared in the part which forms the hole of said **** in a larger configuration than said dregs, and is located in a predetermined dimension lower part from the top face of **** in the inner circumference section part of said hole Even if dispersion is in a bond, neither the magnitude of dregs nor a configuration is [how] scrupulous, and it becomes possible to fail to extract dregs certainly from a web material.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, by such method, when dispersion is in arrangement and magnitude of a bond 57, even if it presses dregs 53 by the punching pin 63, no bonds 57 are fractured depending on the case, but only the punching pin 63 penetrates a web material 51, dregs 53 hang down from a web material 51 through the part of a bond 57, and there is fault which cannot fail to extract dregs 53 certainly. Then, the method the punching pin 63 and the bottom pin 67 were made to descend to drawing 1919 and drawing 20 where it raised the bottom pin 67 at the time of descent of the punching pin 63 and dregs 53 are inserted by the punching pin 63 and the bottom pin 67, as shown in stripping process drawing is also proposed. However, since structure must be complicated, an assembly must take time and effort, since the device in which the bottom pin 67 is made to go up and down on the punching pin 63 and the same axle is needed, and the bottom pin 67 must be raised, this method takes between that minute, and working efficiency also has bad fault.

[0005] Moreover, as an outline top view shown to drawing 21 and shown to drawing 22 thru/or drawing 25 in stripping process drawing Two or more press plates 69 of predetermined die length are formed instead of the punching pin 63. Further the configuration of the hole 59 of **** 61 upper limit in a configuration smaller than dregs 53 And in case it forms in the shape of a taper so that it may become large and dregs 53 are caudad pressed with the press plate 69 as it results caudad, curve deformation of the dregs 53 is carried out, and the method which fails to extract dregs 53 from a web material 51 using the reaction force is also proposed. However, there is fault which there will be fault which cannot still fail to extract dregs 53 certainly, and will take time in processing of the press plate 69 and a hole 59 also by this method if dispersion is in arrangement and magnitude of a bond 57. Moreover, there was a problem it becomes impossible to form a hole 59 in **** 61 by this method by it becoming impossible using the press plate 69 depending on the case where dregs 53 are small when dregs 53 are the round head of a minor diameter, and the configuration of dregs 53, but extracting dregs 53 when dregs 53 approach and are prepared, since a hole 59 is a taper-like further.

[0006] This invention is thought out in view of said situation, even if the purpose of this invention has dispersion in a bond, neither the magnitude of dregs nor a configuration is [how] scrupulous, and it is to offer the female plate structure of the punching machine which can fail to extract dregs certainly from a web material.

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MEANS

[Means for Solving the Problem] In order to attain said purpose, this invention the web material which has the dregs formed by the perforated line and the bond In the punching machine which lay said dregs according to said hole on **** in which the hole was formed, and a hole is made to penetrate a punching pin from said dregs part, and extracts said dregs from a web material It is characterized by preparing the elastic piece located inside the profile of the projection aforementioned dregs at the method of the inside of the direction of a path of a hole in the part which forms the hole of said **** in a larger configuration than said dregs, and is located in a predetermined dimension lower part from the top face of **** in the inner circumference section part of said hole.

[0008] Moreover, this invention consists of an elastic plate with which said **** is arranged on an inferior lamella and this inferior lamella, and a superior lamella arranged on this elastic plate, and said elastic piece is characterized by being formed by said elastic plate.

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OPERATION

[Function] With descent of a punching pin, dregs are pinched by a punching pin and the elastic piece, the whole dregs will be in the condition of having been caudad pressed from the web material, and, thereby, two or more bonds of all will be fractured certainly. It bounds caudad according to the reaction force in which the elastic piece returned to the original condition with that elasticity in the place where dregs moved the elastic piece to the ***** lower part caudad by descent of the further punching pin, dregs also curved to convex caudad by resistance of an elastic piece at this time, and dregs were pushed more nearly caudad than an elastic piece, and dregs carried out curve deformation, falls, and drops certainly from a hole.

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EXAMPLE

[Example] Hereafter, the example of this invention is explained with reference to a drawing. The cross-section front view of the important section of the punching machine which drawing 1 requires for the 1st example, and drawing 2 show the bottom view of this important section. 1 is a punching pin, 3 is ****, the punching pin 1 is attached in the punch side of for example, a press machine, and **** 3 is attached in the female mold side of a press machine. As for said punching pin 1, sponge 7 is fixed to the plywood part around the punching pin 1 by fixing that upper part to plywood 5, and this punching pin 1 is formed in the shape of the round bar as usual. The plywood 5 with which these punching pin 1 and sponge 7 were fixed is attached in the punch of a press machine.

[0011] Said **** 3 consists of an inferior lamella 11, an elastic plate 13 arranged on this inferior lamella 11, and a superior lamella 15 arranged on this elastic plate 13. Said inferior lamella 11 is formed with plywood, and the hole 17 of a larger configuration a little than dregs 53 is formed in the inferior lamella 11. In the example, the plywood whose thickness is about 6.0-9.0mm is used as an inferior lamella 11, and the hole 17 is formed of the laser cut with the profile larger about 1.5mm than the profile of dregs 53.

[0012] Said elastic plate 13 is formed of the member which has the elasticity of synthetic resin or natural rubber. In said elastic plate 13, the elastic piece 21 located inside the profile of the projection dregs 53 is formed in the method of the inside of the direction of a path from the inner circumference section of the hole 19 of a profile larger about 1.0mm than the profile of dregs 53, and this hole 19, the elastic piece 21 sets regular intervals to the hoop direction of a hole 19, and is prepared in it four, and each elastic piece 21 has predetermined die length in the hoop direction. The rubber plate whose thickness is about 1.5mm is used as an elastic plate 13, and the method of the inside of the direction of a path is made to project about 2mm from the inner skin of a hole 19 in the example.

[0013] Said superior lamella 15 is formed with synthetic resin, and the hole 23 of a larger configuration a little than dregs 53 is formed in the superior lamella 15. In the example, since the thickness of the target web material 51 is about 0.3-2.0mm, the vinyl chloride plate whose thickness is about 1.5mm as a superior lamella 15 is used, and the hole 23 is formed of the laser cut in the same configuration as said hole 19. In addition, plywood may be used as a superior lamella 15, and as long as processing is the member made simply, things other than plywood or a synthetic-resin plate may be used for a superior lamella 15 and an inferior lamella 11.

[0014] An inferior lamella 11, an elastic plate 13, and a superior lamella 15 make the core of each hole 17, 19, and 23 agree, and are piled up, **** 25 is fixed, **** 3 is constituted by this, and **** 3 doubles the core of holes 17, 19, and 23 with the punching pin 1, and is attached in the female mold of a press machine.

[0015] Next, an operation is explained. As shown in drawing 3, dregs 53 are aligned with holes 17, 19, and 23, and a web material 51 is carried on **** 3. Next, a punch is dropped as shown in drawing 4. This pierces, a pin 1 and sponge 7 descend, sponge 7 contacts a web material 51 first, and a web

material 51 is suppressed on **** 3 by sponge 7 being compressed.

[0016] As the punching pin 1 shows drawing 5 in the center of dregs 53, with descent of the punching pin 1, dregs 53 are caudad pushed by descent of the further punch, and the bond 57 is fractured. And with descent of the further punching pin 1, as shown in drawing 6, two or more bonds 57 are fractured certainly altogether, and dregs 53 are extracted from a web material 51. With descent of the punching pin 1, dregs 53 are once pinched by the punching pin 1 and the elastic piece 21 on the elastic piece 21, this will be in the condition that the dregs 53 whole was caudad pressed from the web material 51, and it will be thought that two or more bonds 57 are fractured certainly altogether by this.

[0017] As descent of the further punch shows to drawing 7, dregs 53 are caudad pushed by the punching pin 1, dregs 53 move the elastic piece 21 to a ***** lower part caudad, and dregs 53 also curve to convex caudad by resistance of the elastic piece 21 at this time. And it bounds caudad according to the reaction force in which the elastic piece 21 returned to the original condition with the elasticity as the place where dregs 53 were pushed more nearly caudad than the elastic piece 21 showed to drawing 8, and dregs 53 carried out curve deformation, falls, and drops certainly from a hole.

[0018] thus -- according to this example -- the hole of **** 3 -- since the elastic piece 21 was formed in the part located in a predetermined dimension lower part rather than the top face of **** 3 inside, at the time of descent of the punching pin 1, it will be in the condition that the dregs 53 whole was caudad pressed by the punching pin 1 and the elastic piece 21 from the web material 51, and all the bonds 57 will be fractured certainly. Therefore, even if dispersion is in arrangement and magnitude of a bond 57, neither the magnitude of dregs 53 nor a configuration is [how] scrupulous, and it becomes possible to fail to extract dregs 53 certainly.

[0019] Moreover, if an inferior lamella 11 and a superior lamella 15 constitute **** 3 like an example on both sides of the elastic plate 13 with which the elastic piece 21 was formed beforehand, the elastic piece 21 can be formed easily and **** 3 can be obtained cheaply.

[0020] Next, another example is explained with reference to drawing 9 thru/or drawing 13. **** 3 shown [drawing 9] in a bottom view with a cross-section front view at drawing 10 differs in the configuration of the elastic piece 221 from the 1st example. In this example, inside a hole 23, make the elastic piece 221 continue, it is made to project annularly, and is divided by the slit 223 four. With the cross-section front view, corresponding to the configuration of dregs 53, **** 3 shown in a bottom view at drawing 12 is that from which the configuration of dregs 53 became a rectangle, and the configuration of holes 17, 19, and 23 is also formed in a rectangle, the elastic piece 321 projects to drawing 11, and it is formed in the part corresponding to a rectangular long side at it. Moreover, **** 3 shown in a bottom view at drawing 13 is that from which the configuration of dregs 53 became a triangle, and the elastic piece 421 projects in the part corresponding to each triangular side, and it is formed in it. **** 3 shown in a bottom view at drawing 15 is that from which the configuration of dregs 53 became the rectangle of ** length, and in case it enlarges width of face of the elastic piece 522 prepared in a shorter side and extracts dregs 53 to drawing 14, the longitudinal direction center section of dregs 53 serves as convex caudad by the elastic piece 522, and it is made to incurvate it by this example with a cross-section front view to it rather than the elastic piece 521 prepared in a long side.